

FEATURES

- Frequency range 10MHz to 54MHz, fundamental mode
- Ultra-small package 3.2mm x 2.5mm x 0.7mm
- Entire package may be grounded via metal lid and two pads
- Packaged in standard EIA tape and reel
- Extremely low ageing with high shock and vibration resistance
- Ideal for PDAs, hand-held GPS, PCMCIA etc.



DESCRIPTION

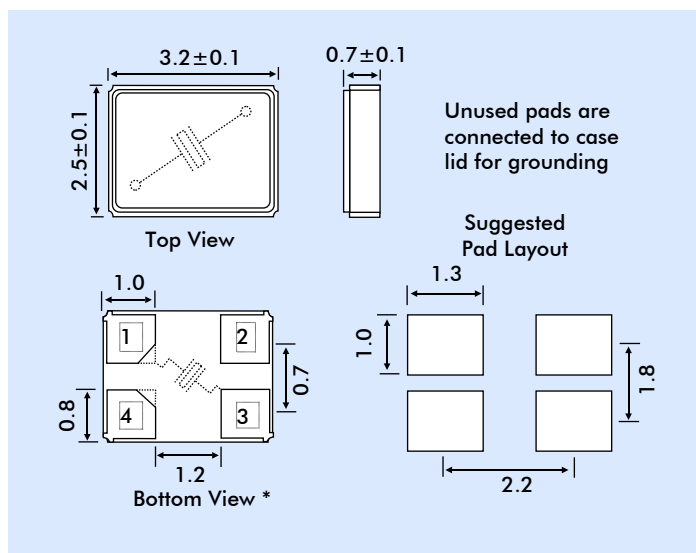
Ultra-miniature AT-cut crystals covering the frequency range 8MHz to 54MHz in fundamental mode, 40MHz to 125MHz at 3rd Overtone. Their small size and low mass makes these crystals ideal for miniaturized hand-held equipment and similar high-density applications.

SPECIFICATION

Frequency Range:	10.0MHz to 125.00MHz
Operating Mode:	AT-Cut Fund./AT-Cut 3rd OT.
Calibration Tolerance at 25°C*:	from ±5ppm (ask) (±10, ±20 or ±30ppm standard)
Frequency stability*	
-10° to +60°C	from ±5ppm (ask)
-20° to +70°C	from ±10ppm
-40° to +85°C	from ±15ppm
Storage Temperature:	-50°~+105°C
Equivalent Series Resistance:	See table
Load Capacitance (CL):	Series or from 8pF to 32pF (Customer specified CL)
Ageing:	<±3ppm per year at +25°C
Drive level:	10µW typical, 100µW maximum
Reflow Soldering:	10s maximum at 260°C twice or 180s at 230°C, once.
Packaging:	12mm EIA tape and reel

*Note: Tighter stability, tolerance and lower ESR values are available.

OUTLINE & DIMENSIONS



* Pad Connections:
Pad 1 and 3: Crystal
Chamfered pad can be Nos.1 or 4

PART NUMBER GENERATION

Part numbers for X32 crystals are generated as follows:

Example: 16.000MHz X32/10/10/ -10+60/12pF/80R

- Nominal Frequency
- Package
- Calibration tolerance at 25°C (±ppm)
- Temperature Stability over temp. range (±ppm)
- Operating Temp. Range (°C) (Lower and upper limits)
- Load Capacitance (Either SR for series or CL in pF)
- Equivalent Series Resistance (Optional - use when special value is required)

EQUIVALENT SERIES RESISTANCE

Frequency Range MHz	ESR Ω Max.	
8.0~9.999	600	
10.0~11.999	200	
12.0~29.999	100	
30.0~54.000	60	
40.0~125.00	80	AT-Cut 3rd Overtone